S A N A T A N

Pratnakirttimapavrinu
(Let us attempt to unravel the glorious past – *Rigveda*)

Edited by
Alok Tripathi

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Ajanta: Padmapani (source ASI)

South **A**sian **N**etwork of **A**rcheologists/academicians for **T**echnical and **A**rtistic **N**urturing

"I am a great believer in luck and I find the harder I work, the more I have of it."
- Thomas Jefferson

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EDITORIAL

Dear Colleagues

The group started with 60 members has crossed 450. More than 450 copies are circulated to the members, and many of them further distribute Sanatan to their friends and colleagues. With a very conservative estimate, we expect that about 600 professionals are receiving Sanatan regularly. It is therefore has become one of the fastest way to reach a large number of persons working in related fields.

Earlier, in certain cases, people did not know about important finds for years together. It gives me immense pleasure to share that the objective of sharing information is picking up. Not only scholars but all those interested in art, culture and heritage are being benefited by generous sharing of information. This would have not possible without the active cooperation of all the members.

The forum would only be useful if we continue sharing knowledge with all those who need it. Navneet Jain has brought to light an inscription and I hope some of the epigraphist would be able to decipher it. It in turn would provide information to all. Similarly many such discoveries would be waiting the assistance and help of various experts.

Editor

DISCOVERY

Inscription from Gudar, district Shivpuri, M.P.

During the survey of Shivpuri district, an inscription was found in village Gudar, in Khaniadhana tahsil. The village is located about 15 km. from Khaniadhana. The two lines inscription is inscribed on a red sandstone slab and seems to be of 9-10th century CE.



It is presently fixed on the upper surface of a platform, of a modern temple. The temple premise contains a large number of Brahmanical images. The villagers were unable to tell about its original find spot. Scholars are invited to decipher it.

- Navneet Kumar Jain, Gwalior

INVITATION

National Seminar, Sagar, December, 2008



On the occasion of Golden Jubilee Celebration of the Dr. Hari Singh Gour University, Sagar, Department of Ancient Indian History, Culture and Archaeology is going to organize a National Seminar on 'New Trends of Archaeological Researches in India' on 19-20 December 2008.

The seminar would discuss recent scientific development, usage of technology in researches and changes in the nature and scope of archaeological researches in the concept of globalization, recent trends, tendencies and methodologies of archaeological researches in India.

Researchers and professionals would also discuss following topics - new discoveries and interpretations in the field of pre and proto history, fieldarchaeology, epigraphy, numismatics, art, architecture, iconography; archaeology and computer technology; marine archaeology; ethnoarchaeology; new trends in conservation and preservation; interdisciplinary approach in archaeological investigations; experimental archaeology; tourism development and heritage management; archaeology, ecology and environment; usage of satellite survey, geophysical survey and geographical information system in archaeology; forensic-archaeology; geo-chemical sourcing, DNA analysis, wear analysis, residue analysis etc. Further details may be obtained from Dr. S. K. Bajpai at alokshrotriya@gmail.com

MUSEUMS

Heritage Museum at Delhi Metro Station

Travellers in Delhi metro on Central Secretariat-Gurgaon route will soon be able to get a glimpse of the city's rich history at Qutb Minar metro station. The Qutb Minar metro station is expected to open in June 2010. The Qutb Minar is declared as the world heritage. 500 sq. m. area at the station has been especially earmarked for the museum where articles of historical importance will be put on display in an open court. The DMRC is in consultation with the Archaeological Survey of India for the arrangement and collection of artefacts.

[source: http://www.hindu.com/thehindu/holnus/002200811231921.htm]

CONSERVATION

Kamani Masjid, Pavagadh, Gujarat

Champaner is located at a distance of 50 km. from Vadodara. The fortified town and ancient monuments are situated at the foothill of the Pavagadh hill. The hill rises to a height of



Kamani Masjid :
Before conservation
(source: ASI)



Kamani Masjid:
After vegetation clearance
(source: ASI)



Kamani Masjid :
Work in progress
(source: ASI)

nearly 800 m. from the mean sea-level. Pavagadh hill was a famous Hindu fortress under the Solanki kings of Gujarat followed by Khichi Chauhans. In 1484, Sultan Mahmud Begarah took possession of the fort and renamed it Muhammadabad.

The monuments at Champaner are spread on the Mauliya plateau, which is situated on the hill. The historical monuments consist of a series of massive fortifications of sandstones with intermediate bastions with beautiful balconies, palaces, tanks, temples, mosques, gates, stores, arches, tombs, etc.

Ancient monuments at Champaner have been declared to be of national importance and are maintained by the Vadodara Circle of the Archaeological Survey of India. Monuments are spread in a large area of medieval capital. The UNESCO has declared the Champaner-Pavagadh Archaeological Park as World Heritage.

The Vadodara Circle is carrying out conservation of an ancient monument, Kamani Masjid. The ongoing work includes resetting of pillars, capitals, arches, etc. and reconstruction of damaged portion of the ancient monument.

- V. Sivananda, Vadodara

FORTHCOMING WORKSHOP

Medieval Delhi: History, Culture and Archaeology, New Delhi, December 2008

Indian History and Culture Society would be organizing a one day workshop on "Medieval Delhi: Some Aspects of History, Culture and Archaeology" on 5 December 2008 at Puratattva Bhawan, B-17 Qutab Institutional Area, New Delhi – 110016.

The workshop will start at 10.30 a.m. and would be chaired by Shri K.N. Dikshit, General Secretary, Indian Archaeological Society. Keynote address will be delivered by Prof. S.Z.H. Jafri, Head of the Department of History, Delhi University.

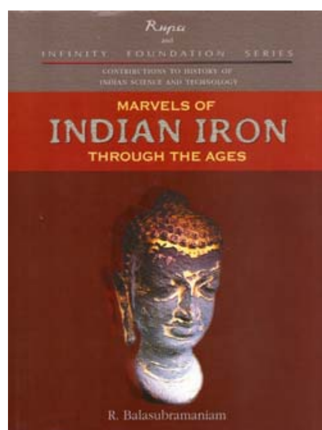
First session on archaeology and architecture will be chaired by Shri B. M. Pandey, Former Director, Archaeological Survey of India and Prof. Ravindra Kumar, Department of

History, IGNOU will speak on architectural technology of Delhi Sultanate monuments: New features and their significance.

Second session on history and culture will be chaired by Dr Surjit K. Jolly, Principal, S.P.M. College, Delhi University. Prof. Inayat Ali Zaidi, Department of History and Culture, Jamia Millia Islamia will speak on medieval Delhi: A hub of cultural varieties. Prof. Sunita Zaidi of the same department will discuss Delhi in the vision of Ibn Batuta and Bernier.

- Vandana Kaushik, New Delhi

BOOK REVIEW



R. Balasubramaniam, *Marvels of Indian Iron Through the Ages*, pp. 283, 173 photographs and 43 line drawings, graphs and map, published by Rupa & Co. and Infinity Foundation Series, New Delhi, 2008. ISBN 978-81-291-1184-5. Price: Not printed.

The Infinity Foundation - a private non-profit foundation based in Princeton, USA - had launched a project in 2002 on 'History of Indian Contribution to Science & Technology (HIST)'. The foundation had planned to publish a series of publications on this subject. The volume under review is one of the three volumes published under this scheme. Prof. R. Balasubramaniam, one of the leading Indian archaeometallurgists and author of several scientific research papers and many books on iron metallurgy including *Delhi Iron Pillar: New Insights* (2002), *The story of the Delhi Iron Pillar* (2005) and *The Saga of Indian Canons* (2007), is best suited to write on the subject entrusted to him.

As emphasised by the author under Preface, the book under review aims to review and present the wonderful iron objects of the Indian subcontinent, in order to excite young readers about the continuous achievements of Indian's mastery over steel and iron

technology in ancient and medieval times and to inform non Indian readers about the wonders of Indian metallurgical skills.

The book is divided in to four chapters. Chapter 1 introduces the basic ideas of iron metallurgy with special reference to the Indian subcontinent. The methods of iron extraction in ancient and medieval India and their comparison with modern methods are discussed. Further, the mastery of Indians in the production of wrought iron directly from the ore by the direct reduction is underlined. It is underlined that iron melts at 1540^0 C, while the ancient Indian metal workers smelted iron at $1000\text{-}1200^0$ C by charging pre-heated ore and charcoal in alternating layers, slowly heated to reduction temperature in an ignited furnace. The illustrations of modern and ancient furnaces, steps involved in the manufacture of iron objects and microstructures of ancient iron make it easy to understand the subject even for the readers not well-versed with the complex processes of metallurgical technologies. After discussing the iron working methods in ancient India it is observed that "ancient [Indian] black-smiths had attained a very high level of skill in cold and hot working and sheet metal forming wrought iron and iron-carbon alloy. They were also aware of the better metal workability of Fe-C alloys in hot condition that is greater than 900^0 C and that two pieces of iron could be forge welded in the white hot condition (-1000^0 C)". The basic information of metallurgical operations comprising joining, casting and mechanical working are also introduced in this chapter. Ancient techniques of mechanical joints with the examples of Delhi Iron Pillar and the reference of *vajra-samghat* (metal cement) from a Gupta period Sanskrita text *Brahatsamhita* have been described to illustrate the considerably high skills of metal working**.** The technique of wire drawing with the use of hardened steel dies ***o***r die plates pressing hair like fine holes, manufacture of a variety of musical instruments using wires (devoid of non metallic inclusions) of various diameters and others aspects of technology are mentioned to re-assert this point. Though the iron workers did not use the casting technique, a brief background of this technique prevailing from the Harappan times is described to further ascertain the same. The most important aspect regarding the ancient Indian Iron technology, underlined by the author, is that some of the brightest and brilliant minds who took part in the development of iron metallurgy belonged to the so called lower strata (tribals and lower castes residing in the ore rich areas) of the Indian Society.



Some of the most significant examples of Indian metallurgical skill are highlighted in Chapter 2. 'Delhi Iron Pillar', a symbol of the country's metallurgical pride and heritage, standing high from about sixteen hundred years without corrosion, is indeed the best amongst them, which has been taken first. This pillar bears an inscription (created by die striking operation and not by inscribing) in Sanskrit, recording that it was set up by *Chandra* (*Chandragupta II Vikramaditya*) datable to 400-450 CE. It is notable that, though the author of the book under review is a metallurgist he has logically identified the king,briefed the Gupta period and dynasty to which King Chandra belonged and highlighted the growth of technologies to illustrate that it was the Golden Age of India in a true sense. He has also cared to hypothesise a possible image of Chandragupta II Vikramaditya on the basis of some depictions in contemporary paintings from Ajanta and Gupta coins. A brief description comprising the history of this pillar and Vishnupadaigiri; from where it was transported from its original place of erection; identified with Udaigiri in central India, astronomical significance of Udaigiri and location of Iron Pillar, its religious significance and details of its movement to Delhi provide some very interesting information to the reader. Since the author has carried out a detailed scientific study on this pillar he has elaborated its different features in considerable detail. The measurements, proportion from the base to the capital, chemical composition and microstructure of the pillar, its manufacturing methodology, corrosion resistance protective passive film mechanism and properties are explained with illustrations, ending with a rightly quoted old saying: "the best of the new is often the long forgotten past". The author has taken care of giving relevant references of the studies and publications related to this magnificent pillar for those interested in further readings on the subject.

The 'Iron Pillar from Dhar' comes next. Its total length is 13 m. It is currently lying in three broken pieces in front of the Lat Masjid at Dhar (near Indore in Madhya Pradesh). The probability of the iron pillar currently standing in Mandu (in front of the Jami Masjid) being the missing fourth piece of the pillar is proposed by the author. A brief history of the pillar, description of its structural features and manufacturing technology are elaborated in this

chapter. The history of the Dhar Pillar shows that it was supposed to be erected during the Gupta period by Smith, according to Prakash it was erected by some south Indian King. It is also hypothesised that Raja Arjunavarma Deva constructed it. However, there is no evidence to substantiate these views. Local tradition associates it with Raja Bhoj ruling in the region between 1010 and 1053 CE. Considering that King Bhoja was well-versed in iron metallurgy and has discussed in his *Yuktikalpataru* about the manufacture of iron weapons and referred earlier texts on metallurgy like *Louharnava*, *Loubadspa* and *Louhpradipa*, Shaivaite features of the pillar and other related aspects its dedication to a Shiva temple is extrapolated. The author also holds the traditional view of associating it with Bhoj. He believes that the site at which the present Lat Masjid stands and the masonry basement where the stone boulders are seen must have been the original erection site of the Dhar iron pillar. The theory regarding the erection of Dhar pillar proposed by Rosseler that the holes found on its lower portion were inserted with small pegs in order to fix cables or wires at different heights of the pillars to hold the pillar in the upright position has not been accepted by the author of this book. He prefers to quote Cousens' observations made in 1902: "upon the masonry basement stand the three great rock boulders, which were bound together by iron bands and had a socket in the top, 20 inches deep, where the foot of the pillar was gripped. The iron bands securing these passed round them horizontally, and their pressure was spread over the boundary by vertical flat iron bars inserted at intervals under the bands in slots cut for purpose. In fact the whole bars can be noticed on the stone blocks". The author further mentions that 'the bottom surface of the pillar possesses a circular hole, to hold an insert for gripping the bottom of the pillar with the stone boulders. Additionally, the circular holes seen in the bottom of the pillar must have been used for securing the pillar with the stone basement with the aid of inserts and ropes. The stone boulders themselves have circular holes provided at the bottom for gripping them to the platform. Regarding the manufacturing methodology the author is of the opinion that it is forged welded by the horizontal forge welding technique. He has also mentioned that according to Prakash (1989) "the pillar has been fabricated by joining long pieces of square cross-section and the plates have been fixed and forge welded as butt welded re-enforcement on the joints." However, the author also considers that the manufacture method proposed by Prakash needs to be looked into carefully for future study of the pillar. The corrosion resistance of the pillar is discussed on the basis of the only available study and a detailed study of the rust from several locations of the three pillar pieces is suggested.

To illustrate the high skills of the ancient Indian iron workers, the author has also discussed the forge welded wrought 'Iron beams and clamps used' extensively to join the long projecting cornices and roof stones of the Bhubanesar temple (640 CE), Jagannath temple (Puri, 12th century CE) and Surya temple, Konark (13th century CE). The longest beam amongst them is measured to 35' long, 7" to 7.5" in square cross section and weighed about 2.5 tones. The high quality of the Konark beams may be estimated by the fact that the modern beams lying in the yard of the Konark temple had corroded much more than the ancient iron beam. As in the case of Delhi iron pillar, the P content is considered to be most important for its corrosion resistance.

After discussing the examples from Delhi, Dhar and Orissa covering north, central and eastern parts of India the iron pillar at the Mookambika hill (South Canara district, Karnataka) from south eastern India, has been selected by the author to further his opinion about the ancient iron working in India. The estimated height of this pillar, known as *dhvajastambha*, is 45'and it weighs about 550 kg., with a cross section of 3.4" x 2.3". The reason for resistance to corrosion of the pillar is considered similar to those applicable in the case of above mentioned examples.



The cannons roar about the skills of the medieval Indian blacksmiths in Chapter 3. This chapter is most elaborate and covers 100 pages comprising 121 illustrations besides the text. As in the previous chapters, this chapter also provides very interesting information usually not known to general readers and to some extent even to the students of history. For example many of us are not aware that India also lays claim on the discovery of saltpetre referred in several medieval Indian texts. The development of cannon is considered to be an outcome of the invention of saltpetre. To provide an overview of the introduction of cannons in India, mention has been made of an illustration of a cannon (1326), a hand held cannon of early 1300 from Europe, references to its use in battles in Europe during 14th-15th centuries, its

arrival to the Indian shore from Ottoman Turks and China, the use of cannons in India - by a king of Vijaynagar in 1368 CE), by Rana Kumbha in 1442-43 CE, by Mahmud Khalji in 1470 CE and so on, and import of artillery from Turkey and China by the South Indian kingdoms and impetus to cannon technology in India due to the arrival of Portuguese at Calicut in 1498 and Babur's use of artillery in the First Battle of Panipat. Apart from that the early devices being used in medieval India, prior to the advent of cannons, including *andaz* (naphtha throwers), *atish-bazi* (fire-playing devices), *hukkah-e-atish bazi* (vessels filed with fire), *ban* (iron cylinders containing gun-powder attached to a long bamboo or reed, rocket), etc are described as a prelude to further technological development.

Further, this chapter gives details of the wrought iron cannons. Such canons were the outcome of the borrowing of the skills from Europe in the beginning of the sixteenth century. The examples of forge welded wrought iron cannons made in 1585 CE and 1589 CE from Khandwa (Madhya Pradesh), Bijapur (ca.1582 CE), and a canon of Sher Shah Suri's time are cited. Apart from iron canon, the Cast Bronze Canons are also given.

The author has underlined the important aspects of the cast bronze cannons, developments in their casting, types and bronze casting technology prevalent during the medieval period in India. He considers that there was a great reluctance to adopt cast iron technology because of the proficiency of the Indian blacksmiths in the production of forge-welded wrought iron objects and brittle nature of the cast iron. Thereafter, the prominent massive forge-welded cannons located in the Indian Subcontinent have been described, which include the specimens from Thanjavur (Tamil Nadu), Dhaka (Bangladesh), Murshidabad and Bishunpur (West Bengal), Jhansi (Uttar Pradesh), Assam, Tripura, Gulbarga, Bijapur, Bidar, Hyderabad, Karimnagar, Basava Kalyan, Udgir, Kaulas and a number of Deccani forts, etc. One of the most massive forge welded cannon referred to as Rajagopala is from Thanjavur manufactured during the reign of Raghunatha Nayaka (1600-1645 CE) measures 751.5 cm. in length, inner and outer diameters of 93 and 63 cm. and over 22 tonnes in weight. The estimated weights of the cannons from Dhaka and Bijapur are about 30 tonnes and 47 tonnes respectively. The handling rings seen on several forge welded iron cannons were used to adjust the direction of the cannon. Mention of the names of respective cannons, such as Jahankosh (Murshidabad), Kadak Bijali, Bhawani Shankar makes the

reading more interesting and captivating. A brief description is devoted to the design and construction of these canons with figures and photographs in a lucid language.

Apart from forge-welded cannons, manufacture of composite cannons (strengthening of wrought iron cannon barrels by casting them over with bronze) was also started in this period. The examples of such cannons from Red Fort Museum (Delhi) and other museums are cited. The excellent joint between their iron and bronze sections has been admired by Europeans. *Fatbjang*, the composite cannon located at Narwar fort was manufactured in 1696 CE for use by Raja Jai Singh Sawai. The author admires the design and construction of composite cannons revealing the skill of the medieval Indian metal-smiths in engineering such wonderful devices, which would have required a very good understanding of metallurgy and also metallurgical operation of wrought iron manufacture and bronze casting technology.

In the end of this chapter, the author has also underlined the unsolved questions to be addressed by the scholars engaged in researches on ancient Indian metalworking. The need of attention, towards the study of numerous massive cannons scattered all over the forts of India, the kind of cannon balls, their effectiveness in breeching fortifications, estimates for their travel, the organisation of the artillery, evolution and epigraphy (apart from the detailed technical study of cannon manufacture and material characterisation), has been emphasised.



On the outset of Chapter 4, exclusively devoted to 'Wootze Steel', the author has observed that the "early ideas about the introduction of iron tradition into India from the west have been proven incorrect". The author's observation that the date of Raja Nala-ka-tila in Uttar Pradesh is the earliest known date, needs correction. A good number of radiocarbon dates pre-dating the appearance of iron are available from Malhar and Dadupur in Uttar Pradesh and Gufkral in Jammu and Kashmir, which range in the early half of the second millennium BCE.

This chapter highlights the Wootze Steel as "one of the greatest material discoveries to originate from the Indian Subcontinent, often referred as "the wonder material of the orient". Other significant information comprised in this chapter is summarised below.

The English word wootze is a corruption of the basic word for steel found in the south Indian languages such as *uruku / uriki* in Tamil, *urku / ukku* in Kannada, *ukk / urukku / ukku* in Malyalam. It is a hypereutectic ferro-carbon alloy with partially and heterogeneously spheroidised cementite, with carbon contents between 1.3% - 1.8%. The basic process of manufacturing this steel consisted of heating iron from the bloomery with other ingredients, contained in a closed clay crucible. "In this manner, the iron picked up appreciable amounts of carbon and melted. The crucibles were then cooled so that the metal after solidification took its shape in the bottom. This solidified ingot was the wootze cake. There are several differences noted by observers and these differences mentioned relate to the crucible material and size, the way the crucible is closed, ingredients charged in to it, the number of crucibles heated at a time, the duration of firing, and the way the crucible is cooled afterwards. Metallurgists have divided this process into South Indian and Hyderabad processes. The swords, armours, fire arms, musical strings and cutting implements made of wootze steel were very famous in ancient times. Wootze steel cakes, manufactured in large quantity the Deccan, were transported all over India to centres of excellent sword manufacture in Rahjasthan, Bihar etc. and later, after the arrival of Muslims it was also traded to the Arab world. Swords fabricated from it were traded in Damuscus (Syria). The semi finished wootze steel swords and blanks were imported from Deccan and they were worked upon by the metal workers of Syria, Iran, Armenia and Caucasus to manufacture the so-called *lahariyadar* Damuscus sword, which was highly prized in Middle Eastern markets during the medieval period. The Europeans were purchasing these swords, which were considered extremely hard and tough and could retain their cutting edges for a long time, from this market.

Presentation of two swords of Indian steel to a Persian king in c. 4th-5th century BCE, the use of large number of steel made surgical instrument quoted in Sushruta (3rd century BCE) – some of which "could bisect a hair longitudinally", carburised iron artefacts from Barudih (830 BCE) and from Taxila (2nd century BCE) point out the use of steel in India in pre-Christian era.

Europeans attempted to duplicate the wootze steel without success during the 18th-19th centuries. From the middle of the nineteenth century the interest in wootze steel and Damuscus swords declined because of the introduction of large scale steel manufacturing processes and the advent of efficient fire-arms. During the subsequent period the wootze steel industry died down due to the restrictions imposed by the British Empire in the form of taxes and ban on export, the tradition of not sharing the essential steps of the technology by master smiths with anybody except their favoured apprentices and their adamant attitude regarding innovations in the technology. However, the research conducted to understand the metallurgy of wootze steel, and its subsequent processing, laid the foundation of alloy steels in Europe. With the concerted study of the ethno-archaeological perspectives of the remaining clues the traditional iron technology may still be revived. Some American scientists are focussing their attention in this direction. Hopefully Indian metallurgists will also focus on this aspect as well.

The Bibliography comprises relevant references and the index is carefully prepared. The printing of the text and figures and general getup of the book are excellent. Figures 4.8 and 4.9 would have been more communicable in a little larger size. In short, this book fulfils the main objective of its publication. It would be a prized possession for the libraries of all disciplines. After going through this book any Indian would feel proud of India's glorious tradition of black-smithy and steel-making practice.

- Rakesh Tewari, Lucknow

[source : text "First Published in Eternal India: A perspective monthly, Vol.-I No-1 pp-160
© India First Foundation". Images from the respective chapters of the book.]

EVENTS

Workshop on Rani-ki-vav, Patan, Gujarat

The Vadodara Circle of the Archaeological Survey of India, in association with CEPT University, Ahmedabad organized a workshop on Rani-ki-vav, Patan from 12th to 14th October 2008 at Ahmedabad. The workshop was inaugurated by Smt Anshu Vaish, Director-General, Archaeological Survey of India on 12th October 2008.



Experts discussed various aspects of this important monument and related issues to prepare a dossier for submitting the proposal to UNESCO for its inclusion in the World Heritage list. The issues discussed during the workshop included - various aspects of conservation, archaeology, historic and architectural importance, unique features of the monument, etc.

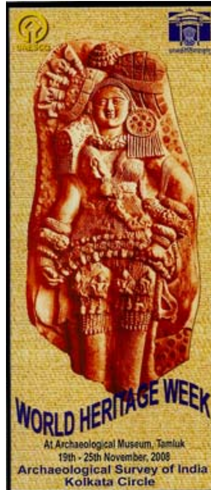
Experts and participants also visited Rani-ki-vav in order to ascertain the present condition of the monument.

- V. Sivananda, Vadodara

World Heritage Week, 19-25 November 2008

The Archaeological Survey of India celebrates World Heritage Week every year from 19 to 25 November. Exhibitions, cultural programmes, activities involving youth and children are organised on various monuments around the country. To promote public participation visitors are allowed to enter the monuments free of charge.

Chennai Circle of the ASI celebrated the week on two of the World Heritage properties – Brihadisvara Temple at Thanjavur and at Mamallapuram. Various activities would be organized for children during the week and prizes would be distributed to the successful participants during the valedictory on 25.11.2008.



Bhubaneswar Circle organised a photo exhibition on Indian Cultural Heritage at Officers Club, Rengali, district Angul. The exhibition would remain open during the week from 10 a.m. to 6 p.m. for the visitors.

Kolkata Circle organised the function at Mahendra Smriti Sadan, Tamluk, district Purba Medinipur. A drawing competition would be organised on 23rd November, and prizes would be distribute during the velidictory ceremony.

The Government of Kerala also organised programme on Pattanam Excavations in connection with the World Heritage Week.

INTERNATIONAL COOPERATION

Research Project for Scientific Studies of Ajanta Murals

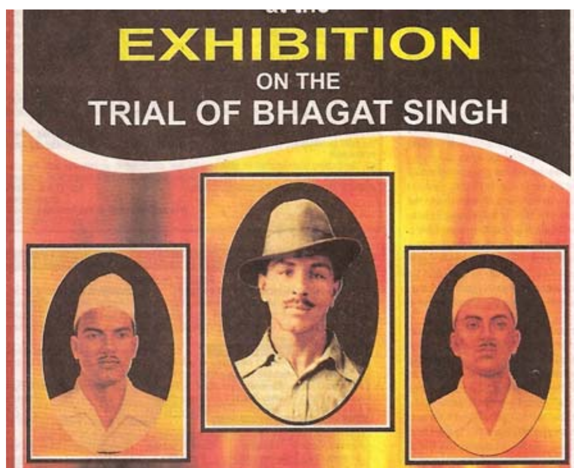
'Agreement on cooperate for the research project for conservation of the mural of Ajanta caves' is signed by India and Japan. The Director-General, Archaeological Survey of India (ASI) and the Director-General, National Research Institute for Cultural Properties (NRICPT), Tokyo signed the agreement on 21 November 2008 at ASI headquarters, New Delhi. Under the agreement both the organisations would cooperate for study and preservation of wall paintings and exchange knowledge and experience.



The conservation work would be focused on murals in cave 2. The research and study would include diagnosis and cleaning of wall paintings, study of materials and techniques used for the paintings, scientific studies through Infra-red and Ultra-violet, etc. Project also includes scientific studies of pigments, binding material and scientific dating. The agreement would remain in force till March 2011.

EXHIBITION

Trial of Bhagat Singh



An exhibition on the trial of Shaheed-e-Azam Bhagat Singh is on in the Supreme Court Museum. Exhibition would continue till 31 December 2008. Exhibition is open to public from 10 a.m. to 8 p.m. on all days.

SEMINAR/CONFERENCE REPORTS

Experts Meeting on Prehistory, UNESCO, Paris

An experts meeting on Prehistory and the World Heritage Convention: Towards an action plan and other thematic studies an international experts seminar, was held at UNESCO Paris on 3-4 November 2008.



The discussions were organized in three working groups: Human evolution, Rock-art and Prehistory. The rock-art working group made its strong intervention that rock-art sites/ complexes are inadequately represented in the world heritage list and it should be given proper representation in all the continents. An action plan was presented for the same to be submitted to World Heritage Committee in Sevilla, Spain for approval. Indian representative in his presentation made a strong plea for Indian rock-art sites, particularly Daraki-Chattan and Chaturbhujnath nala in Chambal valley.

- Giriraj Kumar, Agra

ERRATA

Sanatan 12

Under heading Discovery – Inscription, Mamallapuram, Tamil Nadu – (p. 9) reading of the Pallava inscription was mention as – “Rajendirasimha” (line 6).

The inscription mentions name of Rajasimha and reads “Narendrasimha’.

- Ranjitha, Mamallapuram

Sanatan 11

Under heading Excavation – Excavation at Vadnagar, Gujarat – (p. 3) the site was mentioned in district ‘Sabarkantha’ (line 3).

Vadnagar is located in district “Mehsana”.

- P.S. Thakker, Ahmedabad

OBITUARY

Sir Bernard Melchoir Feilden (1919 – 2008)



Sir Bernard Melchoir Feilden, a conservation architect and a leading authority on the conservation of buildings died peacefully at home on 14th November 2008 Friday. Born in Hampstead, London, on 11 September 1919, he was 89.

A number of important buildings around the world were benefited by the advice of Feilden. These famous buildings include - Norwich Cathedral, York Minister, St Paul's Cathedral, Hampton Court Palace and St Giles Cathedral, Edinburgh in UK; the dome of the Al-Aqsa

mosque in Jerusalem, and the Forbidden City and the Great Wall in China. The ancient monuments in India include - the Taj Mahal and the Sun Temple at Konarak.

His book on architectural conservation published in 1982 - *Conservation of Historic Buildings*, is an important work based on his field experiences. The volume discusses the fundamental principles of conservation and provides practical information.

His consideration for the aesthetic, historical and physical integrity of cultural property, competing spiritual, social and political values, archaeological or architectural authenticity, etc. are guiding principals for conservators and architects.

There will be a memorial and thanksgiving service in Norwich Cathedral in January or February 2009.

VIEWS

Sanatan is an interactive group for sharing news and views. Members are requested to express their views, send opinion on diverse issues related to culture and heritage for inclusion. We receive a number of mails out of which some excerpts are given below. We thank to all colleagues for their contribution and expect similar cooperation throughout.

* * * * * * * *

Recently maiden issue of *Kalash*, a quarterly magazine of temple survey dedicated for temple researches released by Director-General, Archaeological Survey of India at Bhopal.

- S.K. Bajpai, Bhopal

We are exploring the area in district Kaimur and in our recent trip a few more rock-shelters with paintings has come to light. Also we have found a 9 lines Brahmi inscription in the nearby area falling in Kaimur district of Bihar. It seems that it is a fake inscription, which has been engraved recently.

- Prabhakar Upadhyay, Varanasi

I draw attention to the rape of the evergreen forest! Happened few days before at Mamallapuram world heritage site within ASI premises. I request you to put it …as a true conservation lover…. as fast as possible so that we may save the second half and the few rare species left untouched in the first half of the green patch.

- J. Chandrasekaran, Chennai

Sanatan is growing fast with multiple facets.

- Giriraj Kumar, Agra

Sanatan is doing a great job. It is coming up very nicely and I am sure one day it will become one of the most important sought after news bulletins in the field of archaeology.

- Narasimhan Ghanti

Thanks for providing such interesting material and information.

- G.S.L. Devra

I am sending details of a UGC sponsored national student seminar. I am sure we will appreciate the need for developing a research-oriented approach among students in all issues related to current affairs.

- Jyoti Marwah, Delhi

Send your views, information, materials to sanatan08082008@gmail.com for sharing.